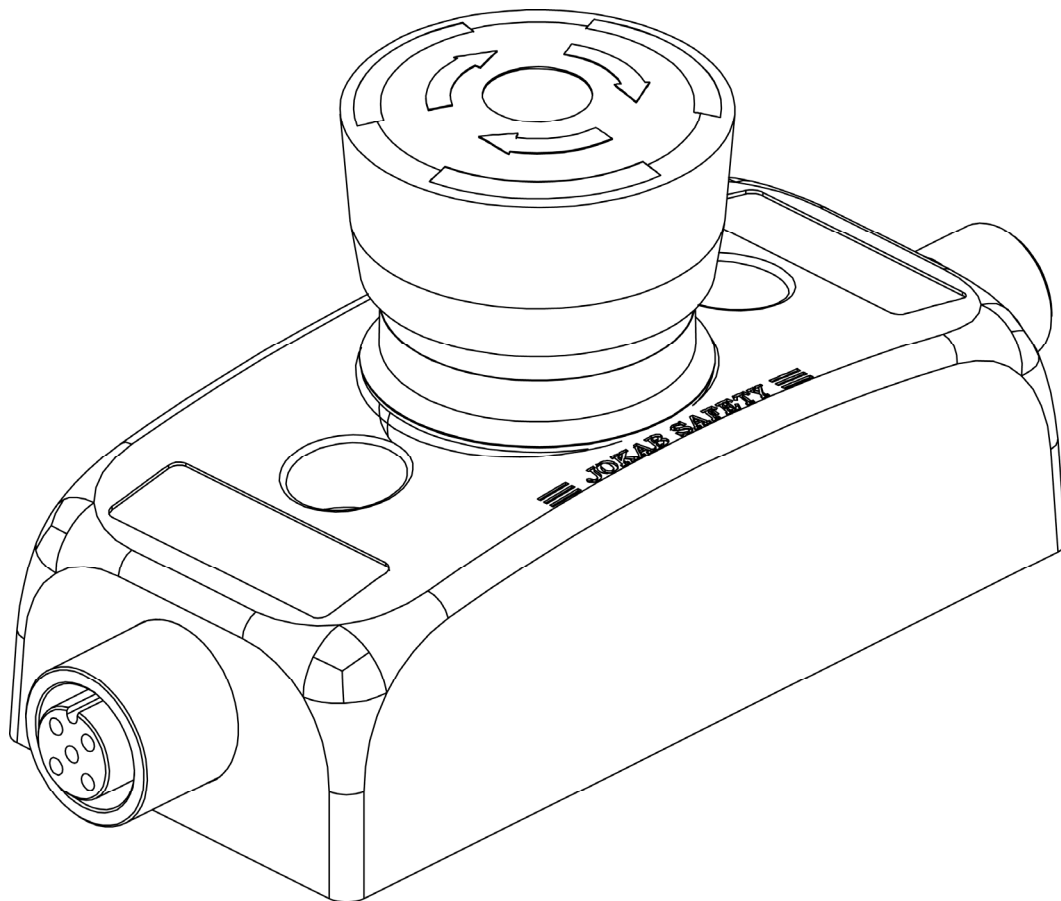


Original instructions

# Smile Tina

## Emergency stop with indication



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# 1 Introduction

## Scope

The purpose of these instructions is to describe the emergency stop Smile Tina and to provide the necessary information required for installation and operation.

## Audience

This document is intended for authorized installation personnel.

## Prerequisites

It is assumed that the reader of this document has knowledge of the following:

- Basic knowledge of Jokab Safety products.
- Knowledge of machine safety.

## Special notes

Pay attention to the following special notes in the document:

**Warning!**

Danger of severe personal injury!

An instruction or procedure which, if not carried out correctly, may result in injury to the technician or other personnel.

**Caution!**

Danger of damage to the equipment!

An instruction or procedure which, if not carried out correctly, may damage the equipment.

NB:

Notes are used to provide important or explanatory information.

## 2 Overview

### General description

In order to fulfil the need for a small and easy to install E-stop, Smile Tina has been developed. The size of the device makes it possible to be installed wherever needed. With M12 connections or cable and centralized mounting holes. Smile Tina is very easy to install, especially on aluminium extrusions. There are three different versions available, either with one or two M12 connections or cable. Two M12 connectors are used to enable the connection of E-stops in series, which is often used with dynamic safety circuits fulfilling safety category 4. On the top of the Smile Tina E-stop unit, an LED indicates the actual status according to the dynamic system. Smile Tina is intended for use in safety circuits in accordance with EN 60204-1.

### Safety regulations



#### Warning!

Carefully read through this entire manual before using the device.

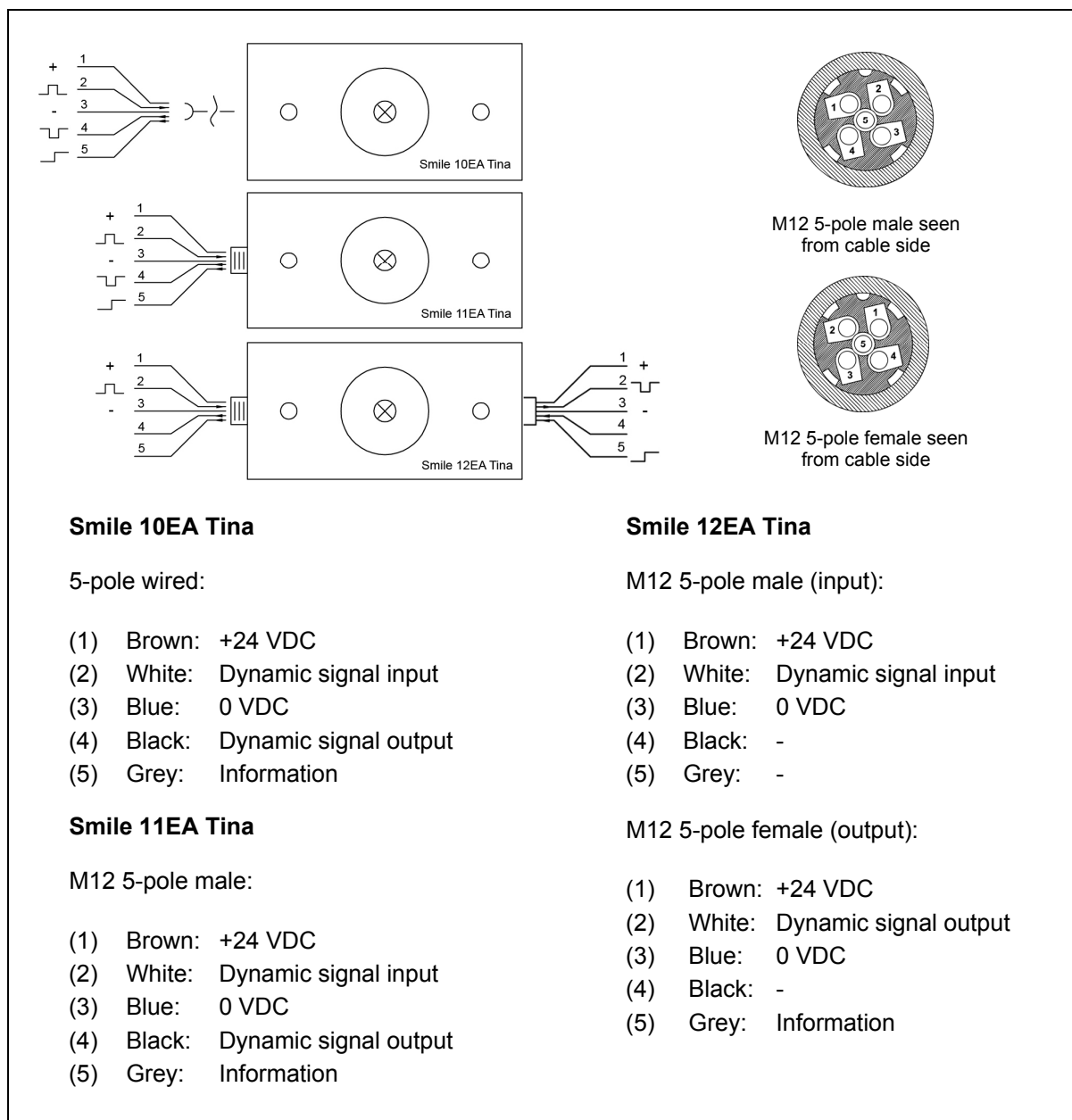
The devices shall be installed by a trained electrician following the Safety regulations, Standards and the Machine directive.

Failure to comply with instructions, operation that is not in accordance with the use prescribed in these instructions, improper installation or handling of the device can affect the safety of people and the plant.

For installation and prescribed use of the product, the special notes in the instructions must be carefully observed and the technical standards relevant to the application must be considered.

In case of failure to comply with the instructions or standards, especially when tampering with and/or modifying the product, any liability is excluded.

### 3 Connections

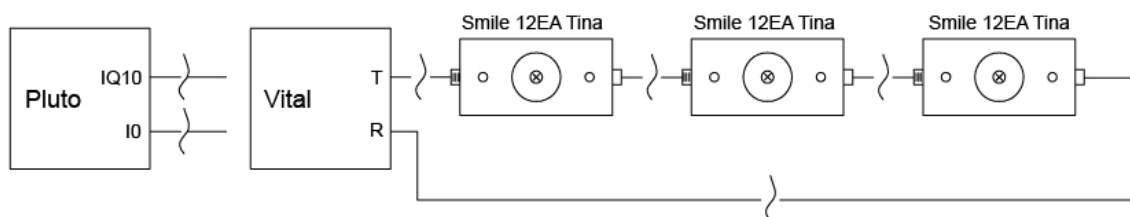


NB: Shielded cable is recommended between this unit and the rest of the safety circuits.

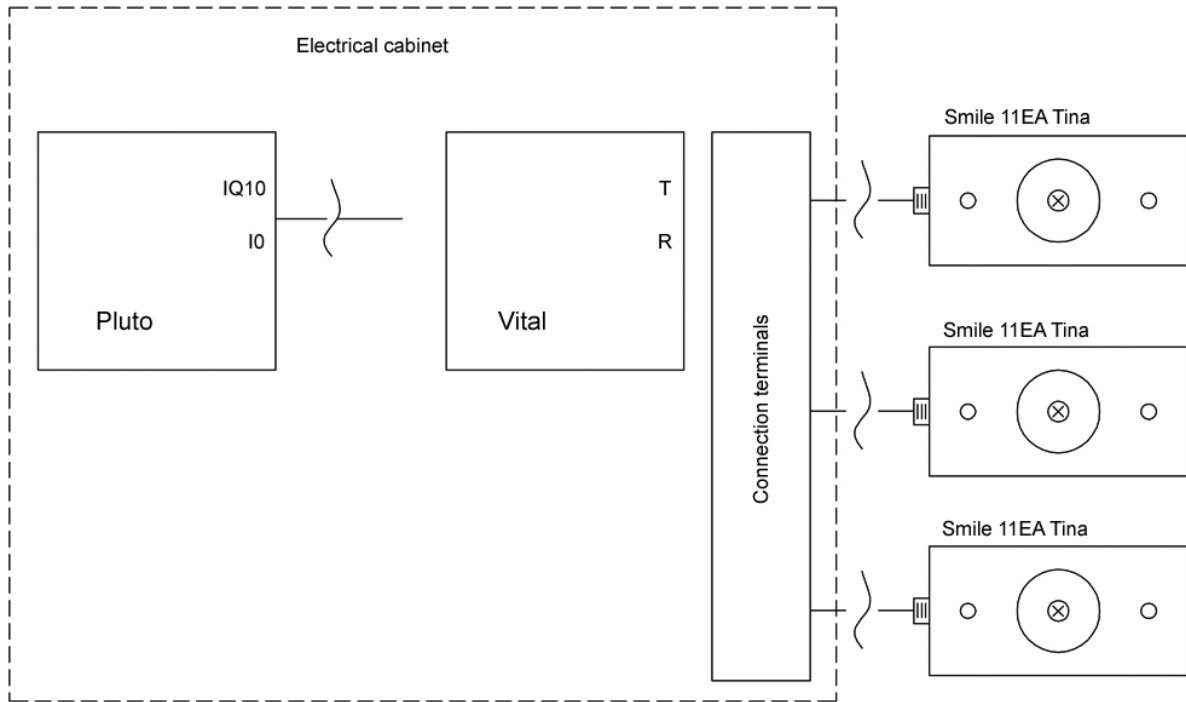


**Warning!** The information channel output shall **never** be used for the safety purpose(s).

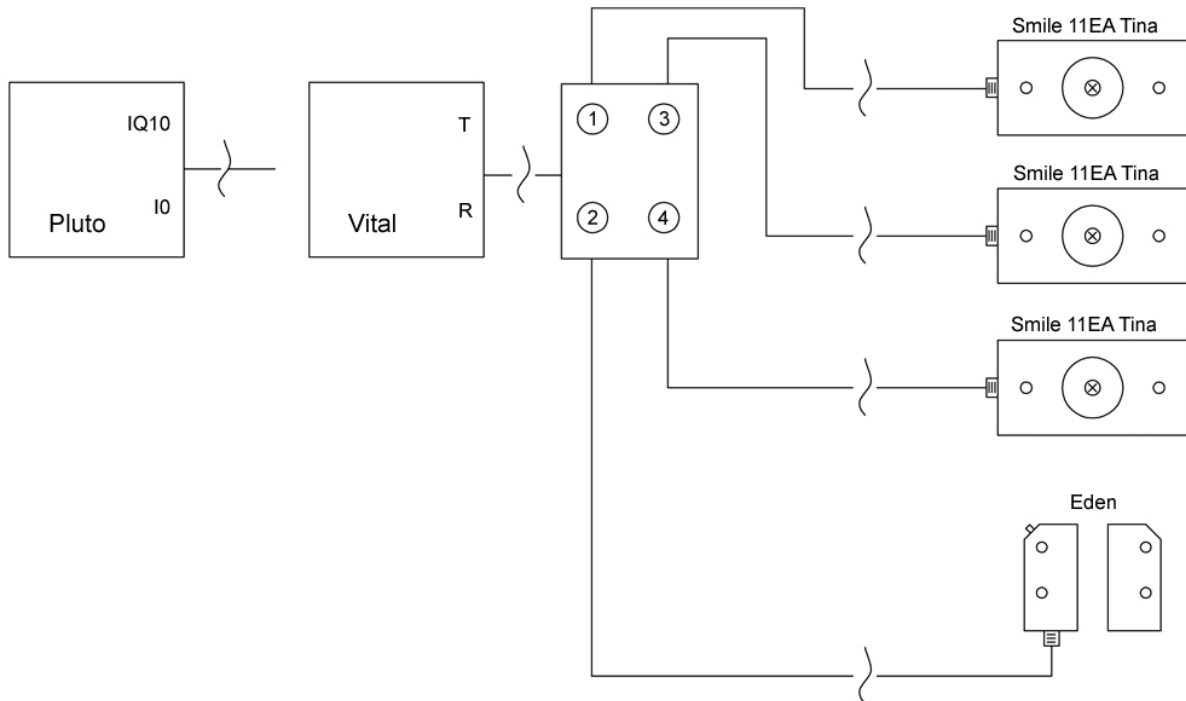
#### Connection examples



Connection example – Three Smile 12EA Tina connected in series to Vital control device or Pluto safety PLC



Connection example – Three Smile 11EA Tina connected in series to Vital control device or Pluto safety PLC through connection terminals in the electrical cabinet



Connection example – Three Smile 11EA Tina and one Eden connected in series to Vital control device or Pluto safety PLC through the connection block Tina 4A

More connection examples can be found at [www.jokabsafety.com](http://www.jokabsafety.com) or in the Safety Handbook.

## 4 Installation and maintenance

### Installation precautions

First mount Smile Tina to the surface with two M5 bolts, and then attach the M12 connection(s).



**Warning!** All the safety functions must be tested before starting up the system.

### Maintenance



**Warning!** The safety functions and the mechanics shall be tested regularly, at least once every year to confirm that all the safety functions are working properly (EN 62061:2005).



**Warning!** In case of breakdown or damage to the product, contact Jokab Safety. Do not try to repair the product since it may accidentally cause permanent damage, impairing the safety of the device which in turn could lead to serious injury to personnel.

### Testing of the safety functions

Make sure the safety unit is working properly by following these steps:

- Interrupt the dynamic safety circuit before this unit. The LED should flash between green and red.
- Interrupt protection (i.e. push the E-stop button). The LED should light red.
- The LED should light green when protection is OK and the safety circuit is not previously broken.

### Troubleshooting

LED indicator note	Expected causes of faults	Checking and measures to take
Lights red	E-stop button is down	Reset the button by turning it clockwise and pulling it upward.
	24 VDC input to pin-2 (no dynamic signal)	Check if there is 24 VDC to input (pin-2). If Yes, check cable or unit before and fix it.
No lights	Loss of power supply	Check 24 VDC / 0 VDC power supply
Lights green (but no dynamic output detected)	Defected dynamic signal input to unit (asymmetric pulses)	Check the dynamic input or the unit before
Weak lights or red and green lights at the same time	The unit is defect	The unit needs to be replaced. Contact Jokab Safety.

NB: Tina 1A can be used instead of this unit to check if the safety circuit is OK (only for test).



**Warning!** Replace a defected unit with a new one and never bypass the safety circuit using Tina 1A or any other solution.

## 5 Operation

### LED indication

LED	Indication	Description	Input signal on pin-2
LED on Tina	Green	Safety circuit closed (protection OK)	Dynamic signal in
	Green-Red (flash)	Safety circuit open (protection OK)	No dynamic signal in <u>or</u> 0 VDC in
	Red	Safety circuit interrupted (protection open)	+24 VDC in <u>or</u> safety circuit interrupted

### Information output signal attributes

The information output of the unit (pin-5) is set either high (+24 VDC) or low (0 VDC) depending on four different input signals (pin-2):

- **Dynamic signal** - Dynamic signal input exist, i.e. the safety circuit is OK up until this unit
- **No dynamic signal** - Dynamic signal input does not exist, i.e. the safety circuit is interrupted before this unit.
- **+24 VDC** - A constant +24 VDC signal is applied = high (H)
- **0 VDC** - The pin is connected to 0 VDC = low (L)

The information output signal depends on the input signal according to the table below. Note that if the safety is interrupted; i.e. if the emergency button is pressed, the information output signal is always low (L).

Input signal (pin-2)	Dynamic signal	No dynamic signal	+24 VDC	0 VDC
Info output signal (pin-5)	High	High	Low	High

The delay for switching the information signal output from high to low (H → L) and low to high (L → H) is given in the table below.

Info output signal switch	H → L	L → H
Delay	~ 12 ms	~ 0 ms

NB: If the unit detects an error (short circuit or interruption) lasting shorter than 13 ms the information output signal is set to low for 1.2 s (1200 ms) and then set to high again. This does not affect Vital since it needs 22 ms to release. Pluto however does release, which means that a filter (20 ms) must be implemented if this function is needed.



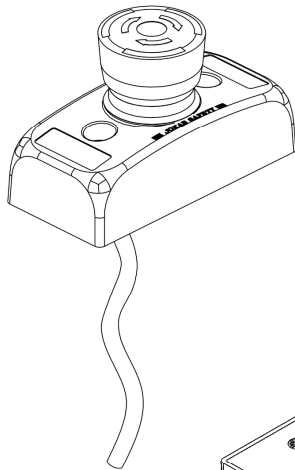
**Warning!** The information output signal is not a failsafe signal and should **never** be used for the safety purpose(s).



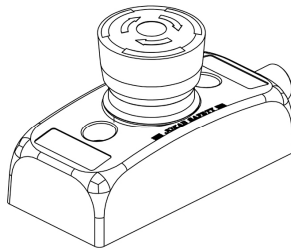
## 6 Model overview

Type	Article number	Description
Smile 11EA Tina	30-050-00	E-stop, red button, M12 5-pole male
Smile 11EAR Tina	30-050-01	E-stop, red button, M12 5-pole male, reversed
Smile 12EA Tina	30-050-02	E-stop, red button, M12 5-pole male, M12 5-pole female
Smile 12EAR Tina	30-050-03	E-stop, red button, M12 5-pole male, M12 5-pole female, reversed
Smile 10EA Tina	30-050-04	E-stop, red button, 1m integrated cable
Smile 11SA Tina	30-050-05	E-stop, black button, M12 5-pole male
Smile 12SA Tina	30-050-06	E-stop, black button, M12 5-pole male, M12 5-pole female
Smile 11SAR Tina	30-050-07	E-stop, black button, M12 5-pole male, reversed
Smile 12SAR Tina	30-050-08	E-stop, black button, M12 5-pole male, M12 5-pole female, reversed

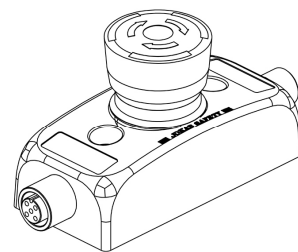
Smile 10EA Tina



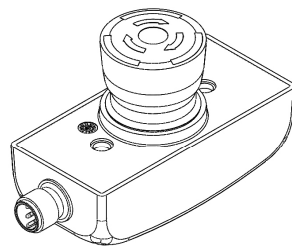
Smile 11EA Tina



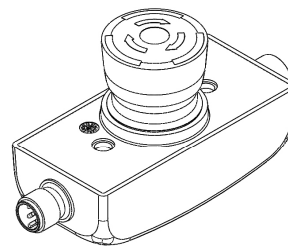
Smile 12EA Tina




Smile 11EAR Tina



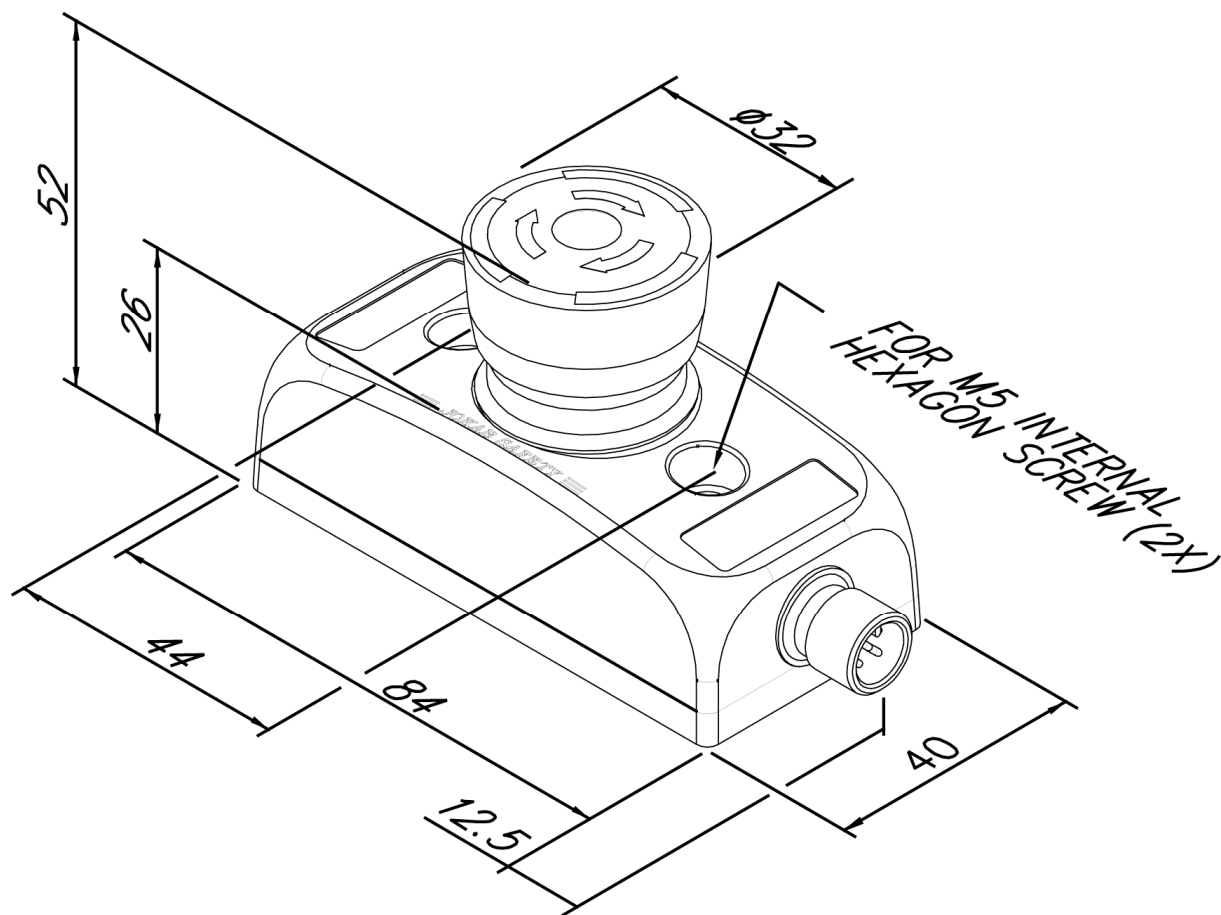
Smile 12EAR Tina



## 7 Technical data

<b>Manufacturer</b>	
Address	JOKAB SAFETY AB Varlabergsvägen 11 S-434 91 Kungsbacka Sweden
<b>Power supply</b>	
Operating voltage	24 VDC +15 %, -25 %
Total current consumption	47 mA (57 mA with max information output) Information output: Max 10 mA
Time delay t (in/out)	t < 70 µs
Voltage supply at normal operation (protection OK) and 24 VDC supply voltage	Dynamic input: between 9 and 13 volt (RMS) Dynamic output: between 9 and 13 volt (RMS) Information output: ~ 23 VDC
<b>General</b>	
Protection class	IP65
Ambient temperature	Storage: -30...+70°C Operation: -10...+55°C
Humidity range	35 to 85 % (with no icing or condensation)
Housing material	Polyamide PA66, Macromelt, polybutylenterephthalate PBT, Polypropene PP, UL 94 V0
Connectors	Smile 10EA Tina: 5-pole cable, 1 m (Smile 10EA Tina) Smile 11x* Tina: M12 5-pole male Smile 12x* Tina: M12 5-pole male, M12 5-pole female * - x can be all models -EA, -EAR, -SA, -SAR
Size	84 x 40 x 52 (L x W x H) – see drawing
Weight	~ 65 g
Colour	Yellow base, red or black button
Actuator force (E-stop button)	22 +/- 4N
Actuator travel	~ 4 mm to latch
Mechanical life	> 50,000 operations
Impact resistance (half sinusoidal)	Max. 150 m/s <sup>2</sup> , pulse width 11 ms, 3-axis (as per EN IEC 60068-2-27)
Vibration resistance (half sinusoidal)	Max. 50m/s <sup>2</sup> at 10 Hz, 10 cycles, 3-axis (as per EN IEC 60068-2-6)
<b>Safety / Harmonized Standards</b>	
Approved standards	European Machinery Directive 2006/42/EC EN ISO 12100-1:2003, EN ISO 12100-2:2003, EN 60204-1:2007, EN 954-1:1996, EN ISO 13849-1:2008, EN 62061:2005, IEC 60947-5-1:2003 + A1:2009
IEC/EN 61508-1...7	SIL3, PFHd: 4.66*10 <sup>-9</sup>
EN 62061	SIL3
EN ISO 13849-1	Performance level: Pl e, category 4
EN 954-1	Category 4
Certificates	TÜV Nord 

**Dimensions**



## 8 EC Declaration of conformity

### EC Declaration of conformity

(according to 2006/42/EC, Annex2A)

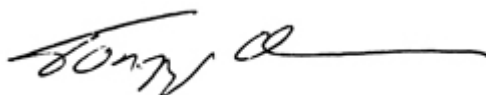
We JOKAB SAFETY AB  
Boplatsgatan 3  
SE-213 76 Malmö  
Sweden

declare that the safety components of JOKAB SAFETY make with type designations and safety functions as listed below, is in conformity with the Directives  
2006/42/EC  
2006/95/EC  
2004/108/EC

Person authorised to compile  
the technical file

Torgny Olsson  
JOKAB Safety AB  
Boplatsgatan 3  
SE-213 76 Malmö  
Sweden

<b>Product</b>	<b>EC type-examination certificate/Notified Body</b>	<b>Serial number</b>
Safety module Vital1	44 205 09 372092-001/0044	[000 – 000 ... 999-999]
Non-contact safety sensor Eden (Adam , Eva) E/C/EC	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Adapter unit Tina 1-8, Tina 10-12	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Emergency stop device Smile Tina	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Emergency stop device Inca-Tina	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Muting unit FMC-Tina	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Non-contact safety sensor including locking function Magne 2A, 2B, 2AX, 2BX	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Light beam Spot 10, 35	44 205 09 372092-002/0044	[000 – 000 ... 999-999]
Adapter unit Tina 8 Profibus	05-SKM-CM-0138/0409	[000 – 000 ... 999-999]
Sensor expansion unit Tina Duo 1, Tina Duo 2	05-SKM-CM-0138/0409	[000 – 000 ... 999-999]
EC type-examination	TÜV NORD CERT GmbH Langemarckstrasse 20, 45141 Essen Germany Notified body No. 0044	Inspecta Sweden AB Box 30100 SE-104 25 Stockholm Sweden Notified body No. 0409
Used harmonized standards	EN ISO 12100-1,-2, EN 954-1, EN ISO 13849-1, EN 62061, EN 60204-1, EN 61496-1, IEC 60664-1, EN 61000-6-2, EN 61000-6-4, EN 60947-5-1, EN 1088	



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Malmö 2009-12-15



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Kungsbacka 2009-12-15

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